

## ABSTRACT

A method and apparatus provided for monitoring the integrity of a structure 10 disposed  
5 in an environment containing a fluid F at an ambient pressure. The structure 10 includes  
a skin 12 and a plurality of internal cavities 14. The method involves applying a further  
fluid to the cavities 14, the applied fluid being at a pressure which is marginally greater  
than the atmospheric ambient pressure F. The flow rate of the applied fluid is monitored  
for detection in a change in the flow rate. The change in flow rate is indicative of  
10 additional fluid seepage through the structure 10 providing advance warning of a failure  
in the integrity of the structure 10. Monitoring is achieved by passing the applied fluid  
through a high fluid flow impedance 28 and monitoring for a change in pressure across  
the impedance 28 using a transducer 30.

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